UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 21-0221
Project: 21-0221, Piney Point - Phase 2 - Reported by Floyd Wellborn

May 12, 2021

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 21-0221, Piney Point - Phase 2

FROM: Floyd Wellborn
LSB Inorganic Chemistry Section Chief

THRU: Sandra Aker, Chief
Laboratory Services Branch

TO: Floyd Wellborn

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Ammonia as N	EPA 350.1 (Water)	ISO
Ammonia/TKN	EPA 351.2 (Water)	ISO
Classical/Nutrients	EPA 300.0 (Water)	ISO
Classical/Nutrients	EPA 300.0 (Water)	ISO/DW
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO/DW
Phosphorous	EPA 365.1 (Water)	ISO

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

cc: Nardina Turner

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SAMPLES INCLUDED IN THIS REPORT

Project: 21-0221, Piney Point - Phase 2

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
Piney 9	E211903-01	Saline Water	5/4/21 10:55	5/5/21 10:20
Piney 17	E211905-01	Saline Water	5/6/21 10:10	5/7/21 10:20

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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-4	Level in blank impacts MRLs.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.

Refer to the certificate and scope of accreditation FT-0330 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR Not accredited for this test.

DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.

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Classical/Nutrient Analyses

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 9 **Lab ID:** E211903-01
Station ID: PINEY 9 **Matrix:** Saline Water

Date Collected: 5/4/21 10:55

CAS Number	Analyte	Results	Qualifiers	Units	MDL / MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	0.050	U	mg/L	0.012 / 0.050	5/07/21 13:01	5/07/21 13:09	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	0.20		mg/L	0.043 / 0.050	5/07/21 12:57	5/10/21 12:17	EPA 351.2
16887-00-6	Chloride	19000		mg/L	0.32 / 2.5	5/10/21 14:10	5/10/21 20:10	EPA 300.0
16984-48-8	Fluoride	0.70	U, D-4	mg/L	0.70 / 0.70	5/11/21 12:08	5/11/21 21:09	EPA 300.0
14808-79-8	Sulfate as SO4	2600		mg/L	0.48 / 2.5	5/10/21 14:10	5/10/21 20:10	EPA 300.0
E701177	Nitrate/Nitrite as N	0.050	U, B-4	mg/L	0.050 / 0.050	5/10/21 14:09	5/10/21 14:44	EPA 353.2
14265-44-2	Orthophosphate as P	0.060		mg/L	0.0038 / 0.010	5/05/21 17:32	5/05/21 19:25	EPA 365.1
7723-14-0	Total Phosphorus	0.085		mg/L	0.0041 / 0.010	5/10/21 14:07	5/11/21 16:52	EPA 365.1

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Classical/Nutrient Analyses

Project: 21-0221, Piney Point - Phase 2

Sample ID: Piney 17 **Lab ID:** E211905-01

Station ID: PINEY 17 **Matrix:** Saline Water

Date Collected: 5/6/21 10:10

CAS Number	Analyte	Results	Qualifiers	Units	MDL / MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	0.050	U	mg/L	0.012 / 0.050	5/07/21 13:01	5/07/21 13:09	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	0.21	J, QM-1	mg/L	0.043 / 0.050	5/07/21 12:57	5/10/21 12:17	EPA 351.2
16887-00-6	Chloride	18000		mg/L	0.32 / 2.5	5/10/21 14:10	5/10/21 20:43	EPA 300.0
16984-48-8	Fluoride	0.70	U, D-4	mg/L	0.70 / 0.70	5/11/21 12:08	5/11/21 21:25	EPA 300.0
14808-79-8	Sulfate as SO4	2300	J, QM-2	mg/L	0.48 / 2.5	5/10/21 14:10	5/10/21 20:43	EPA 300.0
E701177	Nitrate/Nitrite as N	0.050	U, B-4	mg/L	0.050 / 0.050	5/10/21 14:09	5/10/21 14:44	EPA 353.2
14265-44-2	Orthophosphate as P	0.056		mg/L	0.0038 / 0.010	5/07/21 13:46	5/07/21 13:58	EPA 365.1
7723-14-0	Total Phosphorus	0.071		mg/L	0.0041 / 0.010	5/10/21 14:07	5/11/21 16:52	EPA 365.1

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105018 - C 350.1 Ammonia										
Blank (2105018-BLK1)				Prepared & Analyzed: 05/07/21						
EPA 350.1										
Ammonia as N	U	0.050	mg/L							U
LCS (2105018-BS1)				Prepared & Analyzed: 05/07/21						
EPA 350.1										
Ammonia as N	0.98900	0.050	mg/L	1.0000		98.9	90-110			
Matrix Spike (2105018-MS1)	**Source: E211905-01**			Prepared & Analyzed: 05/07/21						
EPA 350.1										
Ammonia as N	0.99400	0.050	mg/L	1.0000	U	99.4	90-110			
Matrix Spike Dup (2105018-MSD1)	**Source: E211905-01**			Prepared & Analyzed: 05/07/21						
EPA 350.1										
Ammonia as N	1.0030	0.050	mg/L	1.0000	U	100	90-110	0.901	10	
MRL Verification (2105018-PS1)				Prepared & Analyzed: 05/07/21						
EPA 350.1										
Ammonia as N	0.049000	0.050	mg/L	0.050000		98.0	70-130			MRL-2, J
Batch 2105019 - C 351.2 TKN										
Blank (2105019-BLK1)				Prepared: 05/07/21 Analyzed: 05/10/21						
EPA 351.2										
Total Kjeldahl Nitrogen	U	0.050	mg/L							U
LCS (2105019-BS1)				Prepared: 05/07/21 Analyzed: 05/10/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.7980	0.050	mg/L	1.7500		103	90-110			
Matrix Spike (2105019-MS1)	**Source: E211905-01**			Prepared: 05/07/21 Analyzed: 05/10/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.0620	0.050	mg/L	1.0000	0.21100	85.1	90-110			QM-1
Matrix Spike Dup (2105019-MSD1)	**Source: E211905-01**			Prepared: 05/07/21 Analyzed: 05/10/21						
EPA 351.2										
Total Kjeldahl Nitrogen	1.1160	0.050	mg/L	1.0000	0.21100	90.5	90-110	4.96	20	

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105019 - C 351.2 TKN										
MRL Verification (2105019-PS1)				Prepared: 05/07/21 Analyzed: 05/10/21						
EPA 351.2										
Total Kjeldahl Nitrogen	0.060000	0.050	mg/L	0.050000		120	70-130			MRL-2
Batch 2105020 - C 365.1 Ortho Phos										
Blank (2105020-BLK1)				Prepared & Analyzed: 05/05/21						
EPA 365.1										
Orthophosphate as P	U	0.010	mg/L							U
LCS (2105020-BS1)				Prepared & Analyzed: 05/05/21						
EPA 365.1										
Orthophosphate as P	0.47700	0.010	mg/L	0.50050		95.3	90-110			
Matrix Spike (2105020-MS1)		**Source: E211903-01**		Prepared & Analyzed: 05/05/21						
EPA 365.1										
Orthophosphate as P	0.53100	0.010	mg/L	0.50050	0.060000	94.1	90-110			
Matrix Spike Dup (2105020-MSD1)		**Source: E211903-01**		Prepared & Analyzed: 05/05/21						
EPA 365.1										
Orthophosphate as P	0.53000	0.010	mg/L	0.50050	0.060000	93.9	90-110	0.189	10	
MRL Verification (2105020-PS1)				Prepared & Analyzed: 05/05/21						
EPA 365.1										
Orthophosphate as P	0.010000	0.010	mg/L	0.010000		100	70-130			MRL-2
Batch 2105025 - C 365.1 Ortho Phos										
Blank (2105025-BLK1)				Prepared & Analyzed: 05/07/21						
EPA 365.1										
Orthophosphate as P	U	0.010	mg/L							U
LCS (2105025-BS1)				Prepared & Analyzed: 05/07/21						
EPA 365.1										
Orthophosphate as P	0.47800	0.010	mg/L	0.50050		95.5	90-110			

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105025 - C 365.1 Ortho Phos										
Matrix Spike (2105025-MS1)	**Source: E211905-01**			Prepared & Analyzed: 05/07/21						
EPA 365.1										
Orthophosphate as P	0.51900	0.010	mg/L	0.50050	0.056000	92.5	90-110			
Matrix Spike Dup (2105025-MSD1)	**Source: E211905-01**			Prepared & Analyzed: 05/07/21						
EPA 365.1										
Orthophosphate as P	0.52100	0.010	mg/L	0.50050	0.056000	92.9	90-110	0.385	10	
MRL Verification (2105025-PS1)				Prepared & Analyzed: 05/07/21						
EPA 365.1										
Orthophosphate as P	0.010000	0.010	mg/L	0.010000		100	70-130			MRL-2
Batch 2105028 - C 365.1 TPhos										
Blank (2105028-BLK1)				Prepared: 05/10/21 Analyzed: 05/11/21						
EPA 365.1										
Total Phosphorus	U	0.010	mg/L							U
LCS (2105028-BS1)				Prepared: 05/10/21 Analyzed: 05/11/21						
EPA 365.1										
Total Phosphorus	0.37100	0.010	mg/L	0.37800		98.1	90-110			
Matrix Spike (2105028-MS1)	**Source: E211905-01**			Prepared: 05/10/21 Analyzed: 05/11/21						
EPA 365.1										
Total Phosphorus	0.57500	0.010	mg/L	0.50050	0.071000	101	90-110			
Matrix Spike Dup (2105028-MSD1)	**Source: E211905-01**			Prepared: 05/10/21 Analyzed: 05/11/21						
EPA 365.1										
Total Phosphorus	0.57800	0.010	mg/L	0.50050	0.071000	101	90-110	0.520	10	
MRL Verification (2105028-PS1)				Prepared: 05/10/21 Analyzed: 05/11/21						
EPA 365.1										
Total Phosphorus	0.011000	0.010	mg/L	0.010000		110	70-130			MRL-2
Batch 2105029 - C 353.2 NO3-NO2										
Blank (2105029-BLK1)				Prepared & Analyzed: 05/10/21						
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105029 - C 353.2 NO3-NO2										
Blank (2105029-BLK1)				Prepared & Analyzed: 05/10/21						
LCS (2105029-BS1)				Prepared & Analyzed: 05/10/21						
EPA 353.2										
Nitrate/Nitrite as N	0.47480	0.050	mg/L	0.50150		94.7	90-110			
Matrix Spike (2105029-MS1)	**Source: E211905-01**			Prepared & Analyzed: 05/10/21						
EPA 353.2										
Nitrate/Nitrite as N	0.47650	0.050	mg/L	0.50150	0.0094000	93.1	90-110			
Matrix Spike Dup (2105029-MSD1)	**Source: E211905-01**			Prepared & Analyzed: 05/10/21						
EPA 353.2										
Nitrate/Nitrite as N	0.48160	0.050	mg/L	0.50150	0.0094000	94.2	90-110	1.06	10	
MRL Verification (2105029-PS1)				Prepared & Analyzed: 05/10/21						
EPA 353.2										
Nitrate/Nitrite as N	0.051900	0.050	mg/L	0.050000		104	70-130			MRL-2
Batch 2105030 - C 300.0 Ion Chromat										
Blank (2105030-BLK1)				Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	U	0.10	mg/L							U
Sulfate as SO4	U	0.10	"							U
LCS (2105030-BS1)				Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	266.93	0.10	mg/L	250.00		107	90-110			
Sulfate as SO4	265.37	0.10	"	250.00		106	90-110			
Matrix Spike (2105030-MS1)	**Source: E211905-01**			Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	915.09		mg/L	200.00	701.09	107	90-110			XM-1
Sulfate as SO4	305.44		"	200.00	92.760	106	90-110			

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2105030 - C 300.0 Ion Chromat										
Matrix Spike Dup (2105030-MSD1)	**Source: E211905-01**			Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	947.61		mg/L	200.00	701.09	123	90-110	3.49	10	XM-1
Sulfate as SO4	317.95		"	200.00	92.760	113	90-110	4.01	10	QM-2
MRL Verification (2105030-PS1)				Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	49.728	0.10	mg/L	50.000		99.5	70-130			MRL-2
Sulfate as SO4	48.078	0.10	"	50.000		96.2	70-130			MRL-2
Batch 2105034 - C 300.0 Ion Chromat										
Blank (2105034-BLK1)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	U	0.050	mg/L							U
LCS (2105034-BS1)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	4.9600	0.050	mg/L	5.0000		99.2	90-110			
Matrix Spike (2105034-MS1)	**Source: E211905-01**			Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	0.80900		mg/L	1.0000	0.066000	74.3	90-110			D-4, QM-1, XM-1
Matrix Spike Dup (2105034-MSD1)	**Source: E211905-01**			Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	0.81200		mg/L	1.0000	0.066000	74.6	90-110	0.370	10	D-4, QM-1, XM-1
MRL Verification (2105034-PS1)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	0.044000	0.050	mg/L	0.050000		88.0	70-130			MRL-2, J
Batch EE11205 - 2105030										
Instrument Blank (EE11205-IBL1)				Prepared & Analyzed: 05/10/21						
EPA 300.0										

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE11205 - 2105030										
Instrument Blank (EE11205-IBL1)				Prepared & Analyzed: 05/10/21						
Chloride	U	0.10	mg/L							U
Sulfate as SO4	U	0.10	"							U
Instrument Blank (EE11205-IBL2)				Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	U	0.10	mg/L							U
Sulfate as SO4	U	0.10	"							U
Instrument Blank (EE11205-IBL3)				Prepared & Analyzed: 05/10/21						
EPA 300.0										
Chloride	U	0.10	mg/L							U
Sulfate as SO4	U	0.10	"							U
Batch EE11207 - 2105034										
Instrument Blank (EE11207-IBL1)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	U	0.050	mg/L							U
Instrument Blank (EE11207-IBL2)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	U	0.050	mg/L							U
Instrument Blank (EE11207-IBL3)				Prepared & Analyzed: 05/11/21						
EPA 300.0										
Fluoride	U	0.050	mg/L							U

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-2	MRL verification for Non-Potable Water matrix
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits
XM-1	Sample background/spike ratio higher than method evaluation criteria